

U.S. Serial No.: 10/615,112  
Amendment dated June 27, 2005  
Reply to Office Action of March 25, 2005

### **REMARKS/ARGUMENTS**

Firstly, the undersigned is appreciative of the Examiner's efforts towards a concise and thorough examination of the present invention. Presently, claims 1-14 are pending in the present application. Claims 1 and 8 stand rejected as being anticipated by U.S. Pat. No. 6,512,366 (hereinafter referred to as Siess). Claims 2, 3, 9 and 10 stand rejected as being unpatentable over Siess in view of U.S. Pat. No. 6,630,821 (hereinafter referred to as Shinjo). The remaining claims stand rejected as being unpatentable over various combinations in view of Siess and Shinjo and further in view of various additional references. Claims 3-5, 7, 10-12 and 14 stand objected to on various informalities. Reconsideration of the rejections and objections is hereby solicited in view of the foregoing amendments and following remarks.

As requested by the Examiner, the title of the present invention has been amended to be more descriptive. As also requested by the Examiner, claims 3-5, 7, 10-12 and 14 have been amended to correct the various informalities noted in the Office Action. It is respectfully submitted that in view of such amendments, these informalities have been corrected, and, consequently, these objections should be removed.

#### **Rejections under 35 U.S.C. §102**

Regarding any rejection under §102, it is noted that the test for anticipation is whether all the elements and operational relationships of the rejected claim are found within a single prior art reference. There must not be any differences between the claimed invention and the reference disclosure as viewed by a person of ordinary skill in the art. Absent from the reference disclosure of any claim element and/or operational interrelationship negates anticipation under §102.

Claim 1 is directed to a sensor assembly for independently sensing direction of rotation and position of an object. Claim 1 in part recites a first circuit coupled to receive a signal from at least one of the sensing elements for detecting direction of rotation of the target wheel. Claim 1 further recites a second circuit coupled to receive each signal

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from the sensing elements for detecting position of the target wheel. Claims 1, as amended, sets forth that the first and second circuits comprise independent circuits from one another. Furthermore, each circuit is directly connected to the sensing elements, whereby the detection of direction of rotation by the first circuit is independent from the detection of position by the second circuit.

Siess is directed to a rotary position transmitter for registering a rotary position. (See title of Siess). As described in the Abstract of Siess, a power generation system outputs power pulses so that, *by using the registered angular ranges*, detection of the direction of rotation of the rotary element is possible. (Italics added by applicant) Thus, the sensor arrangement described by Siess must first make a registration of angular ranges in order to detect direction of rotation. This is consistent with the drawings and specification description provided by Siess. For example, at col. 4, line 35 et. seq., Siess describes an evaluation circuit 10 (FIG. 1) that uses the raw signals from sensors 6-8 to determine an angular range 11-13. Siess goes on to describe at col. 6, line 59 et. seq., a revolution counter 23 disposed downstream of the evaluation circuit 10 (not directly connected to sensors 6-8). As described by Siess, the revolution counter provides the means for detecting a direction of rotation of the rotary element 2 by using two successive registered rotary positions of the rotary element. As noted above, the angular range 11-13, as determined by the evaluation circuit 10, provides the rotary position of the rotary element. Thus, Siess fails to describe or suggest first and second circuits that, as set forth in claim 1, are independent circuits from one another. Moreover, Siess fails to describe or suggest a detection of direction of rotation by a first circuit that is independent from a detection of position by a second circuit. If anything, Siess teaches away from the structural and/or operational relationships set forth in claim 1 being that Siess determination of direction of rotation by counter 23 is directly dependent on the evaluation circuit 10 that determines rotary position. Accordingly, it is respectfully submitted that Siess fails to anticipate or otherwise render obvious claim 1, and applicant kindly requests that this basis of rejection be removed.

Claim 8 is directed to a method for independently sensing direction of rotation and position of an object. Claim 8 has been amended to recite coupling a first circuit to

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directly receive a signal from at least one of the sensing elements for detecting direction of rotation of the target wheel. Claim 8 has been further amended to recite coupling a second circuit to directly receive each signal from the sensing elements for detecting position of the target wheel, wherein the detecting of direction of rotation by the first circuit is independent from the detecting of position by the second circuit. In view of the foregoing discussion regarding Siess, it is respectfully submitted that Siess fails to anticipate or otherwise render obvious claim 8, and applicant kindly request that this basis of rejection be removed.

Rejections under 35 U.S.C. §103(a)

The Office Action rejects the remaining claims as being unpatentable over various combinations of references. That is, either over Siess, in view of Shinjo; or over Siess, in view of Shinjo, and further in view of additional secondary references. As discussed in greater detail below, applicant respectfully submits that such references, alone or in combination, do not teach or suggest the claimed invention, and respectfully requests reconsideration in light of the following comments.

Regarding the rejection of claims 2, 3, 9 and 10 as being unpatentable over Siess in view of Shinjo, it is respectfully submitted that Shinjo is not properly combinable with Siess. Moreover, Shinjo fails to overcome the fundamental deficiencies of Siess discussed above. Shinjo is directed to a magnetic detection device capable of detecting only rotational direction of a toothed magnetic body. Shinjo nowhere describes any capability for detecting rotational position. However, as described by Siess, the sensor arrangement of Siess expressly requires a determination of rotation position in order to determine a direction of rotation. Consequently, the combination of Shinjo (no position determination) with Siess that expressly requires a position determination in order to determine direction of rotation would result in an inoperable device.

Moreover, applicant respectfully submits that there is no motivation in the references to combine the teachings of Shinjo with the teachings of Siess in the manner suggested in the Office Action. The sensor arrangement of Shinjo lacks a position determination. However, this is a key requirement of Siess in order to determine direction of rotation. Accordingly, one of ordinary skill in the art would not be motivated

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to combine Shinjo and Siess since Shinjo lacks what Siess expressly requires in order to determine direction of rotation. Applicant respectfully submits that the combination of Shinjo and Siess can only be achieved by following the claimed invention as a template. However, this is an impermissible basis for sustaining an obviousness rejection, and therefore, such a combination (Siess/Shinjo) is not a *prima facie* combination for sustaining an obviousness rejection. In this case, not only the combination is not suggested by the cited references, but also there would be no reasonable expectation of success since Siess sensor arrangement would not work as intended by Siess in the absence of a determination of position. Consequently, it is respectfully submitted that the Siess/Shinjo combination fails to render obvious claims 2, 3, 9 and 10 and applicant kindly request that these rejections be removed.

Regarding the rejection of claims 4 and 11 as being unpatentable over Siess and Shinjo and further in view of U.S. Pat. No. 6,291,989 (hereinafter referred to as Schroeder), it is respectfully submitted that both Shinjo and Schroeder (singly and in combination) fail to overcome the fundamental deficiencies of Siess. Moreover, as noted above, the combination of Siess and Shinjo does not constitute a *prima facie* combination for sustaining an obviousness rejection. Adding Schroeder to an already defective combination of references (Siess and Shinjo) does not cure the improper basis of that combination. Accordingly, it is respectfully submitted that the Siess/Shinjo/Schroeder combination fails to render obvious claims 4, and 11 and applicant kindly request that these rejections be removed.

Regarding the rejection of claims 5 and 12 as being unpatentable over Siess and Shinjo and further in view of U.S. Pat. No. 4,533,902 (hereinafter referred to as Baker), it is respectfully submitted that both Shinjo and Baker (singly and in combination) fail to overcome the fundamental deficiencies of Siess. Moreover, as noted above, the combination of Siess and Shinjo does not constitute a *prima facie* combination for sustaining an obviousness rejection. Adding Baker to an already defective combination of references (Siess and Shinjo) does not cure the improper basis of that combination. Accordingly, it is respectfully submitted that the Siess/Shinjo/Baker combination fails to render obvious claims 5 and 12 and applicant kindly request that these rejections be removed.

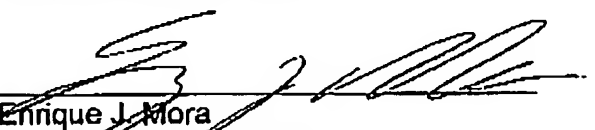
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Regarding the rejection of claims 6, 7, 13 and 14 as being unpatentable over Siess and Shinjo and further in view of U.S. Pat. No. 4,331,917 (hereinafter referred to as Render), it is respectfully submitted that both Shinjo and Render (singly and in combination) fail to overcome the fundamental deficiencies of Siess discussed above. Moreover, as noted above, the combination of Siess and Shinjo does not constitute a *prima facie* combination for sustaining an obviousness rejection. Adding Render to an already defective combination of references (Siess and Shinjo) does not cure the improper basis of that combination. Accordingly, it is respectfully submitted that the Siess/Shinjo/Render combination fails to render obvious claims 6, 7, 13 and 14 and applicant kindly request that these rejections be removed.

For all of the above reasons, applicant submits that the specification and claims are now in proper form, and that each claim defines patentable subject matter over the cited prior art. Therefore, applicant requests reconsideration of the application and allowance of claims 1 - 14 in light of the foregoing amendments and remarks.

The Examiner is invited to call the undersigned if clarification is needed on any aspects of this Reply/Amendment, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



Enrique J. Mora  
Registration No. 36,875  
Beusse Brownlee Wolter Mora & Maire, P.A.  
390 N. Orange Avenue, Suite 2500  
Orlando, FL 32801  
Telephone: 407-926-7705  
Fax: 407-926-7720